UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/401,740	09/23/99	MALHOTRA S	D/99532

IM22/1010

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EXAMINER	
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ART UNIT	**PAPER NUMBER**
1714	6

DATE MAILED: 10/10/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/401,740	Malhotra
Examiner	**Group Art Unit**
Callie Shosho	1714

☒ Responsive to communication(s) filed on *Jul 20, 2000*

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is clos d** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *3* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) *1-22* is/are pending in the applicat

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-22* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

DETAILED ACTION

1. All outstanding rejections except for those described below are overcome by applicant's amendment filed 7/20/00.

This office action is non-final due to the new grounds of rejection as set forth in paragraphs 5-11 and 14 below.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 21-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21 discloses a hot melt ink composition "consisting essentially of (a) styrene polymer or terpene polymer...(d) an optional nonpolymeric aromatic vehicle, ..." while claim 22 discloses a hot melt ink composition "consisting of" identical ingredients as in claim 21.

It is noted that by limiting claim 21 to "consisting essentially of", the hot melt ink composition cannot contain any other ingredients, beside those claimed, which materially affect the basic and novel characteristics of the specified material and by limiting claim 22 to "consisting of", there is excluded from the hot melt ink composition any ingredients other than

those presently claimed. Thus, given this closed language, the scope of the claims is confusing given the presence of "optional" components. With respect to claim 21, the "optional" components would materially affect the basic and novel characteristics of the washing composition. With respect to claim 22 it is not clear exactly what ingredients ~~the~~ are included and which are excluded from the washing composition.

Clarification is requested.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) a patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-2, 4, 8, 12-14, 16, and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takazawa et al. (U.S. 5,279,655).

Takazawa et al. disclose a solid ink having melting point of 50^0-150^0 C wherein the ink contains polystyrene, 10-20% dispersant, 10-40% colorant such as dyes, 20-30% aromatic viscosity modifier, and 20-60% ink vehicle (col.1, lines 24-25, col.3, line 27, col.6, lines 46-50, col.7, lines 20-29, col.8, lines 19-21 and 32-33).

Although there is no explicit disclosure that the polystyrene functions as a hardening component, given that the resins are identical to those presently claimed, it is clear that polystyrene functions inherently as a hardening component.

The difference between Takazawa et al. and the present claimed invention is the requirement in the claims of (a) specific type of styrene polymer and (b) time required to change ink from solid state to liquid state.

With respect to difference (a), the present claims require a styrene polymer such as poly(α-methyl styrene). Takazawa et al. broadly disclose the use of polystyrene. However, one of ordinary skill in the art would have recognized that the broad disclosure of polystyrene in the Takazawa et al. encompasses the use of poly(α-methyl styrene), and that the choice of poly(α-methyl styrene) as the particular styrene resin would have been within the bounds of routine experimentation.

With respect to difference (b), although there is no explicit disclosure of the time required to change the ink from a solid state to a liquid state, given that the reference ink and the

presently claimed have almost identical melting temperatures, it is clear that the reference ink will inherently change from solid to liquid in the same amount of time as presently claimed.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takazawa et al. as applied to claims 1-2, 4, 8, 12-14, 16, and 21-22 above, and further in view of Nishizaki et al. (U.S. 6,022,910).

The difference between Takazawa et al. and the present claimed invention is the requirement in the claims of melt viscosity.

Takazawa et al. disclose the use of viscosity modifiers, but do not explicitly disclose the melt viscosity of the ink.

Nishizaki et al., which is drawn to hot melt inks, discloses that the melt viscosity of hot melt inks must be adjusted to range from 10 cPs to 60 cPs to prevent faulty ejection and clogging of the ink jet printer heads (col.3, lines 10-19).

In light of the above, it would have been within the skill level of one of ordinary skill in the art to adjust the viscosity of the hot melt ink of Takazawa et al. to values, including those presently claimed, in order to prevent faulty ejection and clogging of the ink jet printer heads, and thereby arrive at the claimed invention.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takazawa et al. as applied to claims 1-2, 4, 8, 12-14, 16, and 21-22 above, and further in view of Tobias et al. (U.S. 5,286,288).

The difference between Takazawa et al. and the present claimed invention is the requirement in the claims of conductivity.

Tobias et al., which is drawn to hot melt inks, discloses the use of conductivity agents in order to control the conductivity of the ink from 500-1500 microsiemens/cm or approximately 5.7-6.2 log(picomho/cm) which ensures that the ink has sufficient conductivity in order to be successfully ink jet printed (col.3, line 19).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to control the conductivity of the hot melt of Takazawa et al. via conductivity agents in order to produce an suitable for ink jet printing, and thereby arrive at the claimed invention.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takazawa et al. as applied to claims 1-2, 4, 8, 12-14, and 16 above, and further in view of Ball (U.S. 4,684,956).

The difference between Takazawa et al. and the present claimed invention is the requirement in the claims of the amount of polystyrene.

Takazawa et al. disclose a hot melt ink containing polystyrene, but do not explicitly disclose the amount of polystyrene present.

Ball, which is drawn to hot melt inks, discloses the use of 25-55% polystyrene in order to enhance the adhesion of the ink to substrate (col.3, lines 60-61 and 66-67 and col.3, line 58).

In light of the motivation for using specific amount of polystyrene disclosed by Ball as described above, it therefore would have been obvious to one of ordinary skill in the art to use polystyrene in this amount in the hot melt ink of Takazawa et al. in order to produce an ink with enhanced substrate adhesion, and thereby arrive at the claimed invention.

9. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takazawa et al. as applied to claims 1-2, 4, 8, 12-14, 16, and 21-22 above, and further in view of Yaegashi et al. (U.S. 5,270,730), Wickramanayake (U.S. 5,531,816), Malhotra et al. (U.S. 5,922,117), and Breton et al. (U.S. 6,106,599).

The difference between Takazawa et al. and the present claimed invention is the requirement in the claims of specific type of viscosity modifier.

Yaegashi et al., which is drawn to hot melt inks, discloses the use of heat fusible substances such as dibenzofuran and 4-methylbiphenyl in order to produce an ink with excellent dischargeability, storability, and little blotting (col.10, lines 59 and 64 and col.11, lines 7-13).

Wickramanayake, which is drawn to ink jet inks, discloses the use of phenanthrene as a solvent for the colorant, and to prevent crust formation and nozzle clogging in the printer (col.5, lines 20-33 and 51). Although there is no disclosure of other specific types of phenanthrene, one of ordinary skill in the art would have recognized that the broad disclosure of phenanthrene

encompasses the use of specific types of phenanthrene such as those presently claimed, and that the choice of these specific types of phenanthrene would have been within the bounds of routine experimentation.

Malhotra et al., which is drawn to hot melt inks, discloses the use of 1-adamantane ethanol in order to ensure that the ink has low acoustic loss in order to minimize or reduce energy consumption of the printer and to generate high quality, lightfast, and waterfast images (col.1, lines 43-48).

Breton et al., which is drawn to hot melt ink, disclose the use of phenylsulfonyl compound in order to adjust the viscosity of the ink (col.7, lines 24-25).

In light of the motivation for using dibenzofuran, 4-methylbiphenyl, phenanthrene, 1-adamantane ethanol, and phenylsulfonyl compound disclosed by Yaegashi et al., Wickramanayake, Malhotra et al., and Breton et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use these compounds in the hot melt ink of Takazawa et al. in order to produce a workable ink with excellent dischargeability, storeability, little blotting which minimizes energy use with regards to the printer and does not clog the printer nozzles, and thereby arrive at the claimed invention.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takazawa et al. as applied to claims 1-2, 4, 8, 12-14, 16, and 21-22 above, and further in view of Shawcross et al. (U.S. 6,028,180) and Bruder et al. (U.S. 5,015,292).

The difference between Takazawa et al. and the present claimed invention is the requirement in the claims of specific type of ink vehicle.

Bruder et al., which is drawn to ink jet inks, discloses the use of solvents such as carboxamide in order to enhance waterfastness and smear resistance (col.1, lines 20-29 and col.3, line 29).

Shawcross et al., which is drawn to ink jet inks, discloses the use of solvent such as tetrahydronaphthalene (col.9, lines 37-38).

Shawcross et al. and Bruder et al. broadly disclose tetrahydronaphthalene and carboxamide, respectively. Although there are no specific examples of tetrahydronaphthalenes and carboxamides in either of these references, one of ordinary skill in the art would have recognized that the broad disclosure of tetrahydronaphthalene and carboxamide encompasses the use of specific types of tetrahydronaphthalene and carboxamide such as those presently claimed, and that the choice of these specific types of tetrahydronaphthalene and carboxamide would have been within the bounds of routine experimentation.

In light of the motivation for using specific types of ink vehicles disclosed by Shawcross et al. and Bruder et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use these ink vehicles as the vehicle in the ink of Takazawa et al., in order to produce an ink with enhanced waterfastness and smear resistance.

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takazawa et al. as applied to claims 1-2, 4, 8, 12-14, and 16 above, and further in view of JP06228476, Yaegashi et al. (U.S. 5,220,730), and Malhotra et al. (U.S. 5,902,390).

The difference between Takazawa et al. and the present claimed invention is the requirement in the claims of specific type of dispersing agent.

JP06228476, which is drawn to ink jet inks, discloses the use of 2-oxazolidone in order to produce an ink with excellent humectant properties and discharge stability.

Yaegashi et al., which is drawn to hot melt inks, discloses the use of diphenyl carbonate, glutaric acid, and 1,3-diphenyl-1,3-propanedione in order to produce an ink with excellent dischargeability, storability, and little blotting (col.10, lines 52, 58, and 62 and col.11, lines 7-13). Although there is no specific examples of glutaric acids, one of ordinary skill in the art would have recognized that the broad disclosure of glutaric acid by Yaegashi et al. encompasses the use of specific types of these compounds such as those presently claimed, and that the choice of these specific types would have been within the bounds of routine experimentation.

Malhotra et al. '390, which is drawn to hot melt inks, discloses the use cyclohexanedione in order to control the acoustic-loss value of the ink (col.1, lines 37 and 42-43 and col.5, lines 7 and 13). While the present claims disclose the use of 4,4-dimethyl-1,3-cyclohexanedione and Malhotra et al. '390 disclose the use of 1,2-cyclohexanedione, the only difference between the two compounds is the position of the substituent, i.e. 1,2-cyclohexanedione vs. 1,3-cyclohexanedione, and the presence of a dimethyl substituent. However, absent any evidence of

criticality, one of ordinary skill in the art would expect the cyclohexanedione to function in the same manner regardless of the position of the substituent or the presence of the dimethyl group.

In light of the motivation for using 2-oxazolidone, diphenyl carbonate, glutaric acid, 1,3-diphenyl-1,3-propanedione, and cyclohexanedione disclosed by JP06228476, Yaegashi et al., and Malhotra et al. '390 as described above, it therefore would have been obvious to one of ordinary skill in the art to use compounds in the hot melt ink of Takazawa et al. in order to produce an ink with suitable acoustic-loss value, excellent humectant properties and discharge stability, and thereby arrive at the claimed invention.

12. Claims 1-5, 7-9, 13, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breton et al. (U.S. 6,045,607) in view of Takazawa et al. (U.S. 5,279,655), Ball (U.S. 4,684,956), and Fujioka (U.S. 5,397,388).

Breton et al. discloses a hot melt ink possessing melting temperature of 60^0-150^0 C, melt viscosity of less than 10 cP, acoustic-loss value of 5-40 dB/mm, haze value of 10-30 wherein the ink changes from solid to liquid in about 1-100 milliseconds (col.2, lines 12-17, 25-29, and 45, col.3, lines 18-20, col.6, lines 1-2, and col.16, lines 8-53). The ink contains colorant such as a dye, antioxidant, and UV absorber (col.2, lines 45-47). There is also disclosed an acoustic ink jet printing process (col.16, lines 8-53).

The difference between Breton et al. and the present claimed invention is the requirement in the claims of (a) styrene or terpene resin and (b) aromatic viscosity modifier.

With respect to difference (a), Takazawa et al., which is drawn to hot melt inks, discloses the use of polystyrene in order to produce a solid ink (col.8, lines 1-6 and 21).

Ball, which is drawn to hot melt inks, discloses the use of 22-55% polyterpenes and methyl styrenes in order to enhance the adhesion of the ink so the substrate (col.3, lines 58, 60-61, and 66-67).

Fujioka, which is drawn to hot melt inks, discloses the use of 0.1-48% terpene resins and cumarone-indene resins in order to provide the ink high transparency, controlled hardness, and good wear resistance (col.3, lines 51-58 and col.4, lines 23-24).

Although Takazawa et al., Ball, or Fujioka do not explicitly disclose that the styrene/terpene resins function as hardening components, given that the resins are identical to those presently claimed, it would be natural for one of ordinary skill in the art to infer that these reference styrene/terpene resins intrinsically function as hardening components.

In light of the motivation for using styrene/terpene resin disclosed by Takazawa et al., Ball, and Fujioka as described above, it therefore would have been obvious to one of ordinary skill in the art to use these resins in the hot melt ink of Breton et al. in order to produce a solid ink that has enhanced substrate adhesion, ink high transparency, controlled hardness, and good wear resistance, and thereby arrive at the claimed invention.

With respect to difference (b), Takazawa et al. discloses the use of aromatic viscosity modifiers (col.7, lines 3 and 26-27) in order to control the viscosity of the ink so that the printer nozzles are not clogged.

In light of the motivation for using viscosity modifier disclosed by Takazawa et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use viscosity modifier in the ink of Breton et al. in order to produce an ink that does not clog the printer nozzles, and thereby arrive at the claimed invention.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Breton et al. in view of Takazawa et al., Ball, and Fujioka as applied to claims 1-5, 7-8, 13, and 18-20 above, and further in view of Tobias et al. (U.S. 5,286,288).

The difference between Breton et al. in view of Takazawa et al., Ball, and Fujioka and the present claimed invention is the requirement in the claims of conductivity.

Tobias et al., which is drawn to hot melt inks, discloses the use of conductivity agents in order to control the conductivity of the ink from 500-1500 microsiemens/cm or approximately 5.7-6.2 log(picomho/cm) which ensures that the ink has sufficient conductivity in order to be successfully ink jet printed (col.3, line 19).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to control the conductivity of the hot melt of Breton et al. via conductivity agents in order to produce an suitable for ink jet printing, and thereby arrive at the claimed invention.

14. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breton et al. in view of Takazawa et al., Ball, and Fujioka as applied to claims 1-5, 7-8, 13, and 18-20 above,

and further in view of Yaegashi et al. (U.S. 5,270,730), Wickramanayake (U.S. 5,531,816), Malhotra et al. (U.S. 5,922,117), and Breton et al. '599 (U.S. 6,106,599).

The difference between Breton et al. and the present claimed invention is the requirement in the claims of specific type of viscosity modifier.

Yaegashi et al., which is drawn to hot melt inks, discloses the use of heat fusible substances such as dibenzofuran and 4-methylbiphenyl in order to produce an ink with excellent dischargeability, storability, and little blotting (col.10, lines 59 and 64 and col.11, lines 7-13).

Wickramanayake, which is drawn to ink jet inks, discloses the use of phenanthrene as a solvent for the colorant, and to prevent crust formation and nozzle clogging in the printer (col.5, lines 20-33 and 51). Although there is no disclosure of other specific types of phenanthrene, one of ordinary skill in the art would have recognized that the broad disclosure of phenanthrene encompasses the use of specific types of phenanthrene such as those presently claimed, and that the choice of these specific types of phenanthrene would have been within the bounds of routine experimentation.

Malhotra et al., which is drawn to hot melt inks, discloses the use of 1-adamantane ethanol in order to ensure that the ink has low acoustic loss in order to minimize or reduce energy consumption of the printer and to generate high quality, lightfast, and waterfast images (col.1, lines 43-48).

Breton et al. '599, which is drawn to hot melt ink, disclose the use of phenylsulfonyl compound in order to adjust the viscosity of the ink (col.7, lines 24-25).

In light of the motivation for using dibenzofuran, 4-methylbiphenyl, phenanthrene, 1-adamantane ethanol, and phenylsulfonyl compound disclosed by Yaegashi et al., Wickramanayake, Malhotra et al., and Breton et al. '599 as described above, it therefore would have been obvious to one of ordinary skill in the art to use these compounds in the hot melt ink of Breton et al. in order to produce a workable ink with excellent dischargeability, storeability, little blotting which minimizes energy use with regards to the printer and does not clog the printer nozzles, and thereby arrive at the claimed invention.

15. Claim 16-17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Breton et al. in view of Takazawa et al., Ball, and Fujioka as applied to claims 1-5, 7-8, 13, and 18-20 above, and further in view of JP06228476, Yaegashi et al. (U.S. 5,220,730), and Malhotra et al. (U.S. 5,902,390).

The difference between Breton et al. in view of Takazawa et al., Ball, and Fujioka and the present claimed invention is the requirement in the claims of specific type of dispersing agent.

JP06228476, which is drawn to ink jet inks, discloses the use of 2-oxazolidone in order to produce an ink with excellent humectant properties and discharge stability.

Yaegashi et al., which is drawn to hot melt inks, discloses the use of diphenyl carbonate, glutaric acid, and 1,3-diphenyl-1,3-propanedione in order to produce an ink with excellent dischargeability, storability, and little blotting (col.10, lines 52, 58, and 62 and col.11, lines 7-13). Although there is no specific examples of glutaric acids, one of ordinary skill in the art

would have recognized that the broad disclosure of glutaric acid by Yaegashi et al. encompasses the use of specific types of these compounds such as those presently claimed, and that the choice of these specific types would have been within the bounds of routine experimentation.

Malhotra et al. '390, which is drawn to hot melt inks, discloses the use cyclohexanedione in order to control the acoustic-loss value of the ink (col.1, lines 37 and 42-43 and col.5, lines 7 and 13). While the present claims disclose the use of 4,4-dimethyl-1,3-cyclohexanedione and Malhotra et al. '390 disclose the use of 1,2-cyclohexanedione, the only difference between the two compounds is the position of the substituent, i.e. 1,2-cyclohexanedione vs. 1,3-cyclohexanedione, and the presence of a dimethyl substituent. However, absent any evidence of criticality, one of ordinary skill in the art would expect the cyclohexanedione to function in the same manner regardless of the position of the substituent or the presence of the dimethyl group.

In light of the motivation for using 2-oxazolidone, diphenyl carbonate, glutaric acid, and 1,3-diphenyl-1,3-propanedione, and cyclohexanedione disclosed by JP06228476, Yaegashi et al., and Malhotra et al. '390 as described above, it therefore would have been obvious to one of ordinary skill in the art to use compounds in the hot melt ink of Breton et al. in order to produce an ink with suitable acoustic-loss value, excellent humectant properties and discharge stability, and thereby arrive at the claimed invention.

Response to arguments regarding rejections

16. Applicants' arguments with respect to the Schwartz et al. (U.S. 4,468,255), Malhotra et al. '492 (U.S. 5,876,492), Malhotra et al. '995 (U.S. 5,931,995), and Malhotra et al. '390 (U.S. 5,902,390) have been considered and are moot in view of the discontinuation of these references as applied against the present claims.

17. Applicant's arguments filed 7/20/00 have been fully considered but, with the exception of arguments relating to the Schwartz et al., Malhotra et al. '492, Malhotra et al. '995, and Malhotra et al. '390 references, they are not persuasive.

Specifically, the applicant argues that:

(a) Takazawa et al. disclose the use of a viscosity modifier in a liquid ink but not a solid ink. Further, Takazawa et al. do not disclose the time necessary for the ink to change from solid state to liquid state.

(b) The combination of Takazawa et al. with either Tobias et al. or Ball would not lead one of ordinary skill in the art to the present invention.

(c)Wickramanayake, Shawcross et al., Bruder et al., and JP 6228476 are drawn to liquid inks and thus there is no motivation to combine these references with the solid ink reference of either Takazawa et al. or Breton et al.

(d) Malhotra et al. '117 do not disclose that 1-adamantane ethanol acts as a viscosity modifier. Similarly, Yaegashi et al. do not disclose that dibenzofuran and 4-methylbiphenyl function as viscosity modifiers.

(e) Bruder et al. disclose carboxamides other than those presently claimed.

(f) No disclosure in Yaegashi et al. that the diphenyl carbonate and glutaric acid function as dispersing agents

(g) No disclosure in Breton et al. of styrene polymer or terpene polymer or viscosity modifier.

With respect to argument (a), applicant's attention is drawn to col.7, lines 65-68 of Takazawa et al. which disclose that in the solid ink "conventional vehicles and others can be used without any particular change..". It is the examiner's position that "conventional vehicles and others" encompasses such vehicles as those disclosed in col.6, lines 43-53 of Takazawa et al. wherein the disclosed vehicle includes viscosity modifier. Further, there is no disclosure in Takazawa et al. that viscosity modifiers are excluded from the solid ink.

While it is agreed that Takazawa et al. do not explicitly disclose the time required for the ink to change from the solid state to the liquid state, Takazawa et al. do disclose the melting point of the ink. To the extent that the melting point represents the change from solid to liquid, and given that the melting temperature and the ink ingredients disclosed by Takazawa et al.

overlap those presently claimed, it is the examiner's position that the ink of Takazawa et al. would intrinsically change from solid to liquid in the same time as presently claimed.

In light of the above, Takazawa et al. remains a relevant reference against the present claims.

With respect to argument (b), given that both Tobias et al. and Ball are drawn to hot melt inks as is Takazawa et al. and the present claims, and further given that Tobias et al. teaches that conductivity agents are used in hot melt inks to control the conductivity of the ink to a certain level in order to produce an ink which is suitable for use in an ink jet printer and that Ball teaches amounts of polystyrene typically used in hot melt inks to control adhesion of the ink to substrate, both of which are functions especially relevant to both Takazawa et al. and the invention at hand, it is the examiner's position that there is ample motivation to combine Takazawa et al. with Tobias et al. as well as Takazawa et al. with Ball, and thereby arrive at the claimed invention.

With respect to argument (c), given that it is well known in the art as found, for instance, in Malhotra et al. '492, that hot melt inks contain liquid vehicles and further given, as disclosed in Takazawa et al., that the ingredients for liquid inks and solid inks overlap, i.e. viscosity modifier, colorant, dispersant, etc, it is the examiner's position that there is ample motivation to combine Wickramanayake, Shawcross et al., Bruder et al., and JP 6228476 with either Takazawa et al. or Breton et al.

With respect to argument (d), given that the 1-adamantane ethanol disclosed by Malhotra et al. '117 and the dibenzofuran and 4-methylbiphenyl disclosed by Yaegashi et al. are identical to those presently claimed, it therefore would have been obvious to one of ordinary skill in the art that the 1-adamantane, dibenzofuran, and 4-methylbiphenyl ethanol would intrinsically as a viscosity modifiers.

With respect to argument (e), while Bruder et al. disclose preferred examples of carboxamides, applicant is reminded that "nonpreferred disclosures can be used. a nonpreferred portion of a reference disclosure is just as significant as the preferred portion in assessing the patentability of claims." In re Nehrenberg, 280 F.2d 161, 126 USPQ 383 (CCPA 1960). The fact remains that the broad disclosure of carboxamides by Bruder et al. clearly encompasses the specific carboxamides presently claimed.

With respect to argument (f), given that the diphenyl carbonate and glutaric acid disclosed by Yaegashi et al. are identical to those presently claimed, it therefore would have been obvious to one of ordinary skill in the art that the diphenyl carbonate and glutaric acid would intrinsically function as dispersing agents.

With respect to argument (g), it is agreed that Breton et al. does not explicitly disclose the use of styrene or terpene polymer or viscosity modifier, which is why it is used in combination

with Takazawa et al., Ball, and Fujioka which teach that components such as styrene polymer, terpene polymer, and viscosity modifier are conventionally used in hot melt inks to provide the inks with properties such as adhesion, hardness, suitable viscosity, etc. In light of this, and further given that the ink of Breton et al. is open to the inclusion of other ingredients, i.e. ink composition "comprising", the combination of Breton et al. with Takazawa et al., Ball, and Fujioka et al. is proper.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie Shosho whose telephone number is (703) 305-0208. The examiner can normally be reached on Mondays-Thursdays from 7:00 am to 4:30 pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan, can be reached on (703) 306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3599.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

C.S.

Callie Shosho

10/3/00

Vasu Jagannathan

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